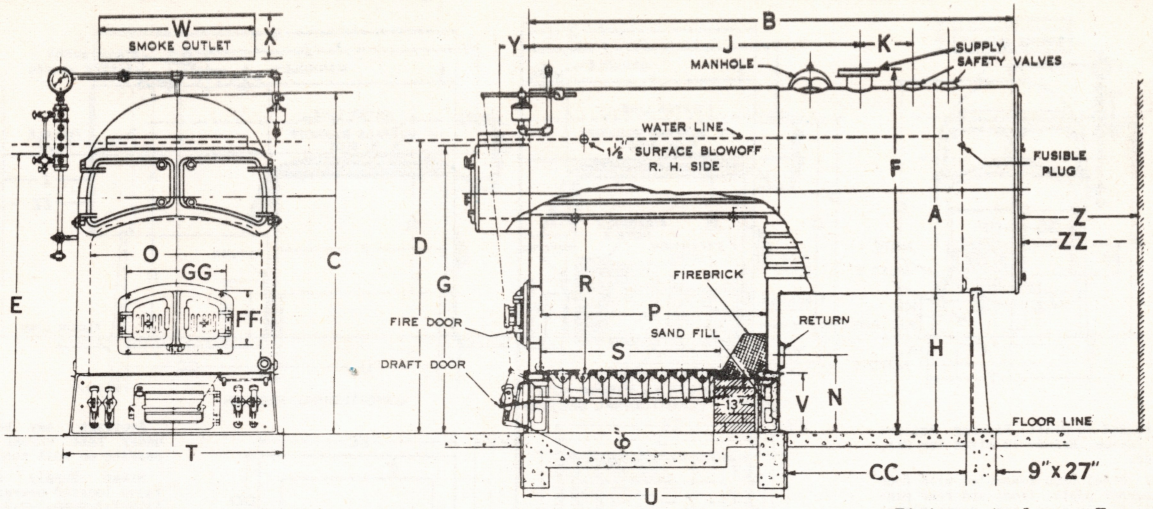
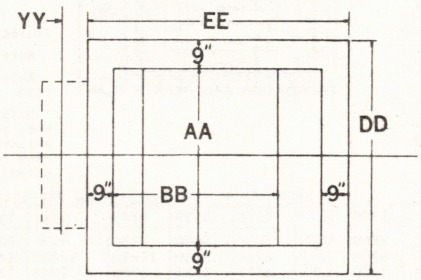
KEWANEE WELDED FIREBOX BOILER "5000" Series Up-Draft For Coal



LONGITUDINAL SECTION



FOUNDATION PLAN

Kewanee Welded Up-Draft Firebox Boilers in "5000" Series include 15 sizes for Burning Coal.

This design features increased heating surface, steam space, disengaging area, furnace volume and water content, yet takes up less room. The steel base is shipped assembled, with grates (on 5076 to 5081). All seams are welded solid.

"5000" Series conforms to boiler Codes of American Society of Mechanical Engineers and Steel Boiler Institute: A.S.M.E. for construction 15 lbs. steam; and for rating with the S.B.I. Simplified Practice Recommendation.

Equipment: Steel base assembled, heavy rocking or dumping grates, backstand except 5076-7; fire and flue doors with frames; cleanout plugs, and manhole on 5082 and larger. No firebrick furnished. Bridgewall omitted on 5076 to 5081.

Firing tools: Hoe, poker, slice bar, flue cleaner and handle; washout plug socket wrench with extra set of gaskets.

Trimmings for Steam Only--Safety valve, steam gauge with syphon and cock, damper regulator, water column with water gauge, glass and cocks, chain operated on -88 and larger.

Footings may be required under base corner posts depending on soil conditions.

Steam Supply and Safety Valve located nearer front on 5076-7-8-9-80-1-2-3-4 and 6.

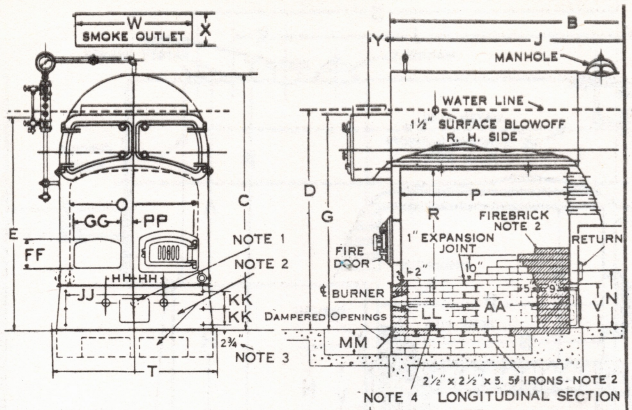
Specifications and Setting Measurements

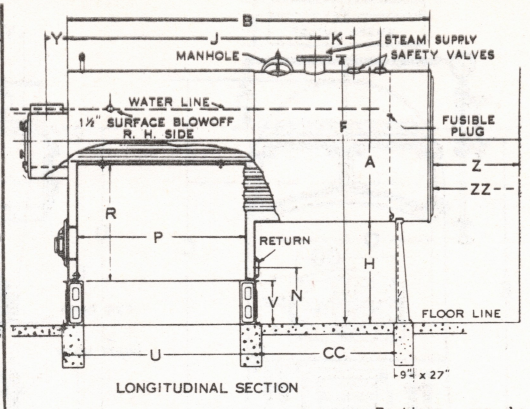
Boiler Number	5076	5077	5078	5079	5080	5081	5082	5083	5084	5085	5086	5087	5088	5089	5090
SBI Rating--Steam Radiation .....sq ft	3500	4000	4500	5000	6000	7000	8500	10000	12500	15000	17500	20000	25000	30000	35000
Water Radiation .....sq ft	5600	6400	7200	8000	9600	11200	13600	16000	20000	24000	28000	32000	40000	48000	56000
Btu per Hour.....1000's	840	960	1080	1200	1440	1680	2040	2400	3000	3600	4200	4800	6000	7200	8400
SBI Net Rating--Steam .....sq ft	2920	3330	3750	4170	5000	5830	7080	8330	10420	12500	14580	16670	20830	25000	29170
Water .....sq ft	4670	5330	6000	6670	8000	9330	11330	13330	16700	20000	23330	26670	33330	40000	46670
Btu per Hour.....1000's	700	800	900	1000	1200	1400	1700	2000	2500	3000	3500	4000	5000	6000	7000
Heating Surface (SBI min.).....sq ft	250	286	322	358	429	500	608	715	893	1072	1250	1429	1786	2143	2500
Grate Area (SBI min.).....sq ft	11.4	12.2	13.4	14.5	16.4	18.1	20.5	22.5	25.6	28.4	30.9	33.2	37.4	41.2	44.7
Breeching Diameter, One Boiler.....in.	19	20	21	22	23	24	26	28	30	31	33	35	39	41	43
Stack Diameter, One Boiler.....in.	17	18	19	20	21	22	24	26	28	29	31	33	36	38	40
Stack Height, One Boiler.....ft	50	55	60	60	60	65	65	70	70	80	80	85	90	100	110
Breeching Diameter, Two Boilers.....in.	25	26	27	28	30	31	34	36	40	41	44	47	50	54	56
Stack Diameter, Two Boilers.....in.	23	24	25	26	28	29	32	34	37	38	41	44	47	50	52
Stack Height, Two Boilers.....ft	60	65	70	70	70	75	75	80	80	90	90	95	100	110	120
Steam Supply Size .....in.	6	6	6	6	8	8	8	8	8	8	8	8	10	10	10
Return Size**** .....in.	4	4	4	4	4	4	4	4	4	4	4	4	6	6	6
Safety Valve Capacity . . .Lb Steam per Hour	1250	1430	1610	1790	2145	2500	3040	3575	4465	5360	6250	7145	8930	10715	12500
Shipping Weight .....lbs	5100	5600	6100	6600	7500	8400	9600	10800	12600	14400	16100	17900	21200	24400	27500
A--Boiler Diameter.....in.	42	42	42	42	48	48	54	54	60	60	66	66	72	78	78
B--Boiler Length.....ft in.	7-3	8-0	8-11	9-10	9-9	11-1	11-1	12-9	13-2½	15-3	14-5½	16-0½	16-8½	17-5½	19-8½
C--Boiler Height Overall.....in.	81	81	81	81	86½	86½	92½	92½	100½	100½	105	105	111	117	117
D--Water Line .....in.	70	70	70	70	73½	73½	77½	77½	84	84	86	86	93	96	96
E--Water Column Height.....in.	68	68	68	68	71½	71½	75½	75½	82	82	84	84	91	94	94
F--Steam Supply Height, Flanged***.....in.	85	85	85	85	91	91	97	97	105	105	109	109	115½	121½	121½
G--Breeching Connection Height.....in.	71	71	71	71	74	74	79	79	85½	85½	87½	87½	93½	98½	98½
H--Rear Stand Height.....in.	38	38	38	38	38	38	38	38	40	40	38	38	38	38	38
J--Steam Supply Location.....ft in.	1-4	1-4	1-5	1-5	1-5	1-5	2-0	2-6	2-6	10-9	2-9	11-0	12-0	12-3	13-0
K--Safety Valve Location**.....ft in.	1-5	1-5	1-6	1-6	1-6	1-4	1-6	1-6	1-6	1-6	1-6	5-3	6-3	4-11	5-7
N--Return Height.....in.	18	18	18	18	18	18	18	18	21	21	21	21	23	23	23
O--Firebox Width.....in.	36½	36½	36½	36½	42½	42½	48½	48½	53½	53½	59½	59½	65½	71½	71½
P--Firebox Length .....in.	50	50	56	62	56	62	72	82	82	86	86	90	102	102	108
R--Firebox Height .....in.	42	42	42	42	44	44	46	46	47	47	47½	47½	50½	53½	53½
S--Grate Length .....in.	50	50	56	62	56	62	61	67	73	79	79	85	85	85	91
T--Base Width .....in.	47½	47½	47½	47½	53½	53½	59½	59½	66	66	72	72	78	84	84
U--Base Length.....in.	60	60	66	72	66	72	82	92	93	97	97	101½	113½	113½	119½
V--Base Height.....in.	14	14	14	14	14	14	14	14	17	17	17	17	17	17	17
W--Breeching Connection Length.....in.	32	32	32	32	34	34	40	40	44	44	51	51	54	60	60
X--Breeching Connection Width .....in.	9	9	9	9	11	11	12	12	14	14	15	15	19	18	18
Y--Breeching Connection Location.....in.	6½	6½	6½	6½	7½	7½	8	8	9	9	9½	9½	11½	11	11
YY--Breech. Conn.CL to Foundation .....in.	4½	4½	4½	4½	5½	5½	6	6	7	7	7½	7½	9½	9	9
Z--Rear Door Clearance.....in.	42	42	42	42	48	48	30	30	33	33	36	36	39	42	42
ZZ--Space to Draw Long Tubes.....ft in.	5-6	6-3	7-2	8-1	7-8	9-0	9-0	10-8	10-9½	12-10	11-8½	13-3½	13-7½	14-4½	16-7½
AA--Ash Pit Width .....in.	36	36	36	36	42	42	47½	47½	52½	52½	58½	58½	64	70	70
BB--Ash Pit Length.....in.	43	43	49	55	39	48	38	48	51	72	60	75	72	78	99
CC--Rear Stand Location .....in.	.....	.....	30	35	39	48	38	48	51	72	60	75	72	78	99
DD--Foundation Width.....in.	54	54	54	54	60	60	65½	65½	70½	70½	76½	76½	82	88	88
EE--Foundation Length .....in.	61	61	67	73	67	73	83	93	94	98	98	102½	114½	114½	120½
FFxGG--Fire Door Opening.....in.	One 13½x27½				Two 11x16				Two 12x20				Two 15x23		
Fire Door Style .....Single Frame & Double Drs.					Right and Left Single Frame and Door										
Number of Common Brick.....	.....	.....	.....	.....	.....	.....	175	175	185	185	200	200	220	240	240
Number of Fire Brick.....	.....	.....	.....	.....	.....	.....	35	50	40	40	40	40	85	110	110
*Outside Surface to Cover .....sq ft	100	110	120	130	140	160	177	202	227	260	265	292	330	370	416

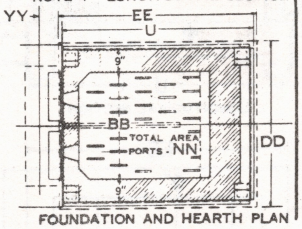
*Front smokebox and front head below smokebox NOT included.
**K is distance beyond Steam Supply on boilers-76 to-86, and from front of boiler-87 to 90.
***Threaded outlet height 3" less.
****Return Connection flanged on 5088,89,90.

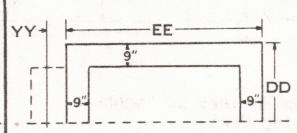
KEWANEE-ROSS CORPORATION
Division of American Radiator & Standard Sanitary Corporation
KEWANEE, ILLINOIS
CIRCULAR 91.15

KEWANEE WELDED FIREBOX BOILER — "5000" Series Up-Draft — For Oil, Gas or Stoker









Kewanee Welded Up-Draft Firebox Boilers in "5000" Series include 15 sizes for Oil, Gas or Stoker.

Equipment: Steel base assembled with four cast iron corner posts, front and rear panels have 8¼x11¼" opening and cover plate; backstand except 5176-7; fire and flue doors; flue cleaner and handle. Manhole furnished on 5182 and larger. Washout plug socket wrench with extra set of gaskets.

Trimmings for Steam Only--Safety valve steam gauge with syphon and cock, water column with water gauge, glass and cocks, chain operated on -88 and larger.

Note 1. For one burner only, locate on center line of boiler and use single hearth plan instead of double.

Footings may be required under base corner posts depending on soil conditions.

Steam Supply and Safety Valve located nearer front on 5176-7-8-9-80-1-2-3-4 and 6.

Note 2. Steel plate with dampers, or for special burner mountings, also fire brick lining and hearth angles, not furnished by Kewanee-Ross Corporation.

Note 3. This dimension 1-3/4" on No.5176 to 5183 inclusive.

Note 4. This dimension LL is greater than height of base for boiler 5190.

Note 5. Represents distance below bottom of water leg that hearth must be set for SBI minimum furnace volume and height on stoker fired boilers 5185-5190. May be provided in base V, or if higher base is used raise water line D same amount, also heights C-E-G-F-N-H. Or extended water leg may be ordered.

Specifications and Setting Measurements

Boiler Number	5176	5177	5178	5179	5180	5181	5182	5183	5184	5185	5186	5187	5188	5189	5190
SBI Rating--Steam Radiation .....sq ft	4250	4860	5470	6080	7290	8500	10330	12150	15180	18220	21250	24290	30360	36430	42500
Water Radiation .....sq ft	6800	7770	8750	9720	11660	13600	16520	19440	24280	29150	34000	38860	48570	58280	68000
Btu per Hour. .....1000's	1020	1166	1313	1459	1750	2040	2479	2916	3643	4373	5100	5830	7286	8743	10200
SBI Net Rating--Steam .....sq ft	3500	4000	4500	5000	6000	7000	8500	10000	12500	15000	17500	20000	25000	30000	35000
Water .....sq ft	5600	6400	7200	8000	9600	11200	13600	16000	20000	24000	28000	32000	40000	48000	56000
Btu per Hour. ....1000's	840	960	1080	1200	1440	1680	2040	2400	3000	3600	4200	4800	6000	7200	8400
Heating Surface (SBI min.). .....sq ft	250	286	322	358	429	500	608	715	893	1072	1250	1429	1786	2143	2500
Furnace Volume (SBI min.). .....cu ft	30.4	34.8	39.1	43.5	52.1	60.8	73.8	86.8	108.5	130.2	151.8	173.5	216.9	260.3	303.6
Furnace Height (SBI min.). ..... in.	30	30½	31-1/4	31-3/4	32-3/4	34	35½	37½	40-1/4	43	46	48-3/4	54½	60½	66
Net Furnace Volume, Oil Gas .....cu ft	49.8	49.8	56.4	62.8	67.8	75.2	102.4	117.7	140.2	147.8	165.7	174.0	237.3	267.0	303.9
Firebox Volume Above Mud Ring .....cu ft	44.3	44.3	49.6	54.5	60.2	66.6	90.6	103.2	117.5	123.4	137.5	144.0	197.1	222.0	235.2
Added Furnace Height for Stoker (SBI min.) in.	(See note 5)	.....	.....	.....	.....	.....	.....	.....	.....	3	5	10	6	10	16
Breeching Diameter, One Boiler. ..... in.	19	20	21	22	23	24	26	28	30	31	33	35	39	41	43
Stack Diameter, One Boiler. ..... in.	17	18	19	20	21	22	24	26	28	29	31	33	36	38	40
Stack Height, One Boiler. ..... ft	40	40	45	50	50	55	50	60	65	80	70	85	85	90	100
Breeching Diameter, Two Boilers ..... in.	25	26	27	28	30	31	34	36	40	41	44	47	50	54	56
Stack Diameter, Two Boilers ..... in.	23	24	25	26	28	29	32	34	37	38	41	44	47	50	52
Stack Height, Two Boilers ..... ft	50	50	55	60	60	65	60	70	75	90	80	95	95	100	110
Steam Supply Size ..... in.	6	6	6	6	8	8	8	8	8	8	8	8	10	10	10
Return Size**** ..... in.	4	4	4	4	4	4	4	4	4	4	4	4	6	6	6
Safety Valve Capacity . . .Lb.Steam per Hour	1250	1430	1610	1790	2145	2500	3040	3575	4465	5360	6250	7145	8930	10715	12500
Shipping Weight .....Lbs	4500	5000	5400	5800	6600	7400	8500	9600	11100	12800	14400	16000	19200	22300	25200
A--Boiler Diameter. ..... in.	42	42	42	42	48	48	54	54	60	60	66	66	72	78	78
B--Boiler Length. .....ft in.	7-3	8-0	8-11	9-10	9-9	11-1	11-1	12-9	13-2½	15-3	14-5½	16-0½	16-8½	17-5½	19-8½
C--Boiler Height Overall. ..... in.	81	81	81	81	86½	86½	92½	92½	100½	100½	105	105	111	117	117
D--Water Line ..... in.	70	70	70	70	73½	73½	77½	77½	84	84	86	86	93	96	96
E--Water Column Height. ..... in.	68	68	68	68	71½	71½	75½	75½	82	82	84	84	91	94	94
F--Steam Supply Height, Flanged***. ... in.	85	85	85	85	91	91	97	97	105	105	109	109	115½	121½	121½
G--Breeching Connection Height. ..... in.	71	71	71	71	74	74	79	79	85½	85½	87½	87½	93½	98½	98½
H--Rear Stand Height. ..... in.	38	38	38	38	38	38	38	38	40	40	38	38	38	38	38
J--Steam Supply Location. .....ft in.	1-4	1-4	1-5	1-5	1-5	1-5	2-0	2-6	2-6	10-9	2-9	11-0	12-0	12-3	13-0
K--Safety Valve Location**. .....ft in.	1-5	1-5	1-6	1-6	1-6	1-4	1-6	1-6	1-6	1-6	1-6	5-3	6-3	4-11	5-7
N--Return Height. ..... in.	18	18	18	18	18	18	18	18	21	21	21	21	23	23	23
O--Firebox Width. ..... in.	36½	36½	36½	36½	42½	42½	48½	48½	53½	53½	59½	59½	65½	71½	71½
P--Firebox Length ..... in.	50	50	56	62	56	62	72	82	82	86	86	90	102	102	108
R--Firebox Height ..... in.	42	42	42	42	44	44	46	46	47	47	47½	47½	50½	53½	53½
T--Base Width ..... in.	47½	47½	47½	47½	53½	53½	59½	59½	66	66	72	72	78	84	84
U--Base Length. ..... in.	60	60	66	72	66	72	82	92	93	97	97	101½	113½	113½	119½
V--Base Height. ..... in.	14	14	14	14	14	14	14	14	17	17	17	17	17	17	17
W--Breeching Connection Length. ..... in.	32	32	32	32	34	34	40	40	44	44	51	51	54	60	60
X--Breeching Connection Width ..... in.	9	9	9	9	11	11	12	12	14	14	15	15	19	18	18
Y--Breeching Connection Location. ..... in.	6½	6½	6½	6½	7½	7½	8	8	9	9	9½	9½	11½	11	11
YY--Breech. Conn. C.L. to Foundation. . . in.	4½	4½	4½	4½	5½	5½	6	6	7	7	7½	7½	9½	9	9
Z--Rear Door Clearance. ..... in.	42	42	42	42	48	48	30	30	33	33	36	36	39	42	42
ZZ--Space to Draw Long Tubes. .....ft in.	5-6	6-3	7-2	8-1	7-8	9-0	9-0	10-8	10-9½	12-10	11-8½	13-3½	13-7½	14-4½	16-7½
AA--Furnace Length. ..... in.	41	41	47	53	47	53	63	73	73	77	77	81	93	93	99
BB--Furnace Width ..... in.	30	30	30	30	33	33	36	36	42	42	48	48	54	60	60
CC--Rear Stand Location ..... in.	.....	.....	30	35	39	48	38	48	51	72	60	75	72	78	99
DD--Foundation Width. ..... in.	54	54	54	54	60	60	65½	65½	70½	70½	76½	76½	82	88	88
EE--Foundation Length ..... in.	61	61	67	73	67	73	83	93	94	98	98	102½	114½	114½	120½
FFxGG--Fire Door Opening. ..... in.	One 13½x27½				Two 11x16				Two 12x20				Two 15x23		
Fire Door Style	Single Frame & Double Drs.				Right and Left Single Frame and Door										
PP--Centerline Boiler to Firedoor Opening in.	.....	.....	.....	.....	3½	3½	6	6	4½	4½	7½	7½	6½	10	10
HH--Burners Location. ..... in.	.....	.....	.....	.....	7	7	8½	8½	9½	9½	11	11	12½	14	14
JJ--Bolt Centers in Plate ..... in.	37½	37½	37½	37½	43½	43½	49½	49½	55½	55½	61½	61½	67½	73½	73½
KK--Bolt Centers in Plate ..... in.	4-3/4	4-3/4	4-3/4	4-3/4	4-3/4	4-3/4	4-3/4	4-3/4	5-3/4	5-3/4	5-3/4	5-3/4	5-3/4	5-3/4	5-3/4
LL--Hearth to Bottom of Boiler. ..... in.	14	14	14	14	14	14	14	14	17	17	17	17	17	17	23
MM--Pit Depth ..... in.	9	9	9	9	10	10	10	10	10	11	11	17	12	15	24
NN--Total Area Ports or Openings. . . .sq in.	64	73	83	92	110	127	155	182	230	273	320	365	455	545	640
Size of Dampered Openings ..... in.	6x11	6x12	6x14	6x16	7x16	7x18	7x22	7x26	2-7x16	2-8x17	2-8x20	2-9x20	2-9x25	2-10x27	2-11x29
Number of Fire Brick.	340	340	360	380	390	415	565	620	715	740	780	920	920	1000	1275
*Outside Surface to Cover .....sq ft	100	110	120	130	140	160	177	202	227	260	265	292	330	370	416

*Front smokebox and front head below smokebox NOT included.
**K is distance beyond Steam Supply on boilers-76 to-86, and from front of boiler -87 to -90.
***Threaded outlet height 3" less.
****Return Connection flanged on 5188, 89, 90.

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